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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/530,694 | 05/04/2000 | Noriyuki Nakaoka | Q58984 | 3536 |

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07/21/2003

Sughrue Mion Zinn Macpeak & Seas
2100 Pennsylvania Avenue NW
Washington, DC 20037-3202

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EXAMINER

BERNATZ, KEVIN M

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 07/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/530,694

Applicant(s)

NAKAOKA ET AL.

Examiner

Kevin M Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 18.
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 20.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. Preliminary amendments to the specification and claims 1, 6, 8, 9 and 11 - 18, filed on April 21, 2003 and June 27, 2003, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Examiner's Comments

3. As per the interview on June 25, 2003, the limitation "segmented substantially sheet-like layers" is deemed supported by, and is accurately representative of, the structure of the semi-hard magnetic material produced by applicants (*Figures 3 – 5*).

Request for Continued Examination

4. The Request for Continued Examination (RCE) under 37 CFR 1.53 (d) filed on April 21, 2003 is acceptable and a RCE has been established. An action on the RCE follows.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 6, 7, 10 and 16 – 18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 - 10 of Nakaoka et al. (U.S. Patent No. 6,001,194) in view of Endo (JP ' 823 A).

Regarding claims 6 and 16, Nakaoka et al. claim a magnetic material wherein said magnetic material possess Cu group metal phases and Fe phases in strip like elongated forms (*claims 1, 2 and 7*) meeting the limitation "said magnetic material having a structure ... being segmented substantially sheet-like layers".

In the instant case, the Nakaoka et al. invention is produced by a substantially identical process (*col. 7, lines 56 – 67; col. 9, line 59 bridging col. 10, line 3; and col. 10, lines 61 - 63*) which results in a microstructure substantially identical to applicants' disclosed microstructure (*Nakaoka et al.: Figures 1 and 3 vs. the present application Figures 3 - 5*). Specifically, the Examiner notes that "rod like" layers still appear as "sheet-like" when viewed along an "x-y" axis. I.e. the "layers" in Figures 1 and 3 of the

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prior art can not be distinguished from being radial “rods” or plate-like “layers” and Nakaoka et al. teach that the material can be shaped as rods, plates or other structures (*col. 7, lines 31 – 34*).

Regarding the limitations “semi-hard magnetic material can maintain a magnetized state and can also be demagnetized” and “Fe having magnetism”, these properties are material characteristics of “substantially Fe” and semi-hard magnetic materials, and are deemed to be necessarily present in the claimed Nakaoka et al. invention (*claim 10 and col. 2, lines 23 – 31 and Paper No. 16, page 6*).

Nakaoka et al. fails to claim a coercivity meeting applicants’ claimed limitation, i.e. greater than or equal to 800 A/m (~10 Oe).

However, Endo teaches the importance of controlling the coercivity to above the claimed minimum value (*English translation – bottom of page 1*). The Examiner deems that it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable such as the coercivity through routine experimentation, especially given the teaching in Endo regarding the desire to use a coercivity value exceeding applicants’ claimed value for a “semi-hard” FeCu alloy. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 7, 10, 17 and 18, Nakaoka et al. claim applying a bias magnetic field to the magnetoresistive element (*claim 1*).

7. Claims 6, 7, 10 and 16 – 18 are directed to an invention not patentably distinct from claims 1 - 10 of commonly assigned patent Nakaoka et al. (U.S. Patent No. 6,001,194), as described above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned patent, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee is required under 35 U.S.C. 103(c) and 37 CFR 1.78(c) to either show that the conflicting inventions were commonly owned at the time the invention in this application was made or to name the prior inventor of the conflicting subject matter. Failure to comply with this requirement will result in a holding of abandonment of the application.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

8. Applicant is advised that should claim 7 be found allowable, claim 10 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both

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cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim.

See MPEP § 706.03(k).

9. Applicant is advised that should claim 17 be found allowable, claim 18 will also be objected to under 37 CFR 1.75 as being a substantial duplicate thereof.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(f) he did not himself invent the subject matter sought to be patented.

11. Claims 6, 7, 10 and 16 – 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Nakaoka et al. (EP 875,874 A2).

Regarding claims 6 and 16, Nakaoka et al. ('874) disclose a semi-hard magnetic material (*page 2, lines 50 – 54*) wherein the coercive force of the semi-hard magnetic material is greater than or equal to 800 A/m (*page 5, lines 21 – 22*), said magnetic material having a structure in which layers "A" each consist essentially of Fe having magnetism and layers "B" each containing a non-magnetic Cu group metal (*page 3,*

lines 14 – 15 and Examples) as the main component thereof are stacked on each other, the layers “B” being segmented substantially sheet-like layers (*page 6, lines 31 – 33 and 50 – 51 and Figures 1A and 3B*).

Specifically, the Examiner notes that “rod like” layers still appear as “sheet-like” when viewed along an “x-y” axis. I.e. the “layers” in Figures 1A and 3B of the prior art can not be distinguished from being radial “rods” or plate-like “layers” and Nakaoka et al. teach that the material can be shaped as rods, plates or other structures (*page 6, lines 12 - 15*).

Regarding claims 7, 10, 17 and 18, Nakaoka et al. disclose forming magnetic markers from these materials (*page 3, lines 6 – 7*).

12. Claims 6, 7, 10 and 16 – 18 are rejected under 35 U.S.C. 102(e) as being Nakaoka et al. ('194).

Regarding claims 6 and 16, Nakaoka et al. ('194) disclose a semi-hard magnetic material (*col. 5, lines 48 - 52*) wherein the coercive force of the semi-hard magnetic material is greater than or equal to 800 A/m (*col. 6, lines 11 - 12*), said magnetic material having a structure in which layers “A” each consist essentially of Fe having magnetism and layers “B” each containing a non-magnetic Cu group metal (*col. 2, lines 60 - 64 and Examples*) as the main component thereof are stacked on each other, the layers “B” being segmented substantially sheet-like layers (*col. 4, lines 24 – 32; col. 7, lines 5 – 11; and Figures 1A and 3B*).

Specifically, the Examiner notes that “rod like” layers still appear as “sheet-like” when viewed along an “x-y” axis. I.e. the “layers” in Figures 1 and 3 of the prior art can not be distinguished from being radial “rods” or plate-like “layers” and Nakaoka et al. teach that the material can be shaped as rods, plates or other structures (*col. 7, lines 31 – 34*).

Regarding claims 7, 10, 17 and 18, Nakaoka et al. disclose forming magnetic markers from these materials (*col. 2, lines 49 - 50*).

13. Claims 6, 7, 10 and 16 – 18 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. Nakaoka et al. ('194) and Nakaoka et al. ('874 A2) disclose the claimed invention as described above, and possess a different inventive entity than the presently claimed application.

Claim Rejections - 35 USC § 103

14. Claims 11 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning et al. ('460) in view of Endo (JP '823 A) and Jha et al. ('923). See provided English language translation of JP '823 A.

Regarding claim 11, Manning et al. disclose a method of producing a magnetic material (*col. 3, lines 49 - 50*), wherein the magnetic coercive force H_c of the magnetic material is greater than or equal to 800 A/m (~10 Oe) (*col. 3, lines 32 - 34*), comprising

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the steps of heating the multilayered body by a heat treatment (*col. 4, lines 36 - 48*) and applying cold plastic working to the multilayered body (*col. 4, lines 49 - 56*).

Manning et al. fail to disclose a semi-hard material consisting of Fe and Cu group elements. I.e. Manning et al. disclose starting with a single FeMn ingot (*col. 3, lines 62 - 63 and col. 4, line 19*).

However, Endo teaches that semi-hard magnetic materials consisting of Fe and Cu (*page 1*) can be used to produce a magnetic material possessing improved residual flex density, as well as coercivity values meeting Manning et al.'s disclosed range (*page 1*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Manning et al. to use a semi-hard magnetic material consisting of Fe and Cu group elements as taught by Endo, since such a material possesses improved residual flex density, as well as coercivity.

Regarding the limitation "can maintain a magnetized state and can also be demagnetized" the Examiner notes that this is material characteristic of a "semi-hard" magnetic material (*Paper No. 16, page 6*).

Neither Manning et al. nor Endo disclose starting with the step of preparing layers "A" and layers "B" stacked on each other prior to heating the multilayered body, nor whether each of the layers "B" is partially divided by a dividing heat treatment.

However, Jha et al. teach that it is known in the art of metal alloying to start by forming alternating layers comprising the different metallic metals to be alloyed together to metallurgically bond the layers together and to facilitate good uniformity of the metals

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in each other (*col. 2, lines 16 – 48*). Regarding the limitation “is partially divided by a dividing heat treatment”, Jha et al. teach that when these materials are hot or cold rolled, one of the metals will be distributed in the other (*col. 2, lines 31 – 48*), which is deemed to meet the limitation “partially divided” since clearly the layer will be broken *in at least one location*. The Examiner notes that Manning et al. specifically teaches annealing the starting material to “alloy[s] the alloy to fully homogenize” (*Manning et al., col. 4, lines 42*), which is what Jha et al. teach results when heating/hot rolling the laminated material.

It would therefore have been obvious to start with a laminate meeting applicants’ claimed structural limitations, thereby producing a body “partially divided” since Jha et al. teach that such a structure leads to metallurgical bonding as well as good homogenization of the alloy composition.

Regarding claim 12, Manning et al. disclose an initial heat treatment meeting applicants’ claimed temperature and time limitations (*col. 4, line 37 - 43*).

Regarding claims 13 and 14, Manning et al. disclose a second heat treatment after the cold rolling meeting applicants’ claimed temperature and time limitations (*col. 4, lines 57 - 65*). The limitation(s) “so that squareness ratio ... are enhanced” is (an) intended use limitation(s) and does not result in a manipulative difference as compared to the prior art. Note that “in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. ***In a claim***

drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. [emphasis added] *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). See MPEP § 2111.02.

In the instant case, the time of the heat treatment, i.e. after cold working, the duration of the heat treatment and the temperature of the heat treatment are substantially identical to applicants' claimed process.

Regarding claim 15, Manning et al. disclose final thickness values meeting applicants' claimed thickness limitations (*col. 5, lines 6 – 8*).

15. Claims 1 – 5 and 11 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaoka et al. (EP '874 A2) in view of Jha et al. ('923).

Regarding claims 1 and 11, Nakaoka et al. is relied upon as described above.

Nakaoka et al. fail to disclose starting with the step of preparing layers "A" and layers "B" stacked on each other prior to heating the multilayered body, nor whether each of the layers "B" is partially divided by a dividing heat treatment.

However, Jha et al. teach that it is known in the art of metal alloying to start by forming alternating layers comprising the different metallic metals to be alloyed together to metallurgically bond the layers together and to facilitate good uniformity of the metals in each other (*col. 2, lines 16 – 48*). Regarding the limitation "is partially divided by a dividing heat treatment", Jha et al. teach that when these materials are hot or cold rolled, one of the metals will be distributed in the other (*col. 2, lines 31 – 48*), which is

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deemed to meet the limitation “partially divided” since clearly the layer will be broken *in at least one location*. The Examiner notes that Nakaoka et al. specifically teach that the starting material is best if the “non-magnetic copper group metal is uniformly distributed” (*page 6, lines 43 – 53*), which is what Jha et al. teach results when heating/hot rolling the laminated material.

It would therefore have been obvious to start with a laminate meeting applicants’ claimed structural limitations, thereby producing a body “partially divided” since Jha et al. teach that such a structure leads to metallurgical bonding as well as uniform distribution of the alloy composition.

Regarding claims 2 and 12, Nakaoka et al. disclose an initial heat treatment meeting applicants’ claimed temperature and time limitations (*page 7, lines 51 - 52*).

Regarding claims 13 and 14, Nakaoka et al. disclose a second heat treatment after the cold rolling meeting applicants’ claimed intended use, temperature and time limitations (*page 4, lines 13 – 25 and page 9, lines 16 - 17*).

Regarding claim 15, Nakaoka et al. disclose final thickness values meeting applicants’ claimed thickness limitations (*page 7, line 53*).

Response to Arguments

- 16. The rejection of claims 1 and 6 under 35 U.S.C § 102(a) – Nakanishi et al.**
The rejection of claims 1, 5 and 6 under 35 U.S.C § 102(b) – Whetstone et al.
The rejection of claims 2 – 4, 7 and 10 under 35 U.S.C § 103(a) – Whetstone et al. in view of Manning et al.

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Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

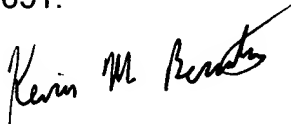
The above noted rejection has been withdrawn because applicant(s) amendment(s) have set forth new limitations (e.g. "semi-hard" and "segmented substantially sheet-like layers") no longer anticipated, nor rendered obvious, by the above noted rejection.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (703) 308-1737. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



Kevin M. Bernatz
Patent Examiner

July 13, 2003